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## Abstract

PURPOSE:To obtain a thin film of high quality at lower temperature than a conventional one at a high growing velocity thereby to be able to largely reduce a growing time by a gas source ALE method by using one or more types of H2S2, H2S3, H2S4 as compound gas containing group VI element.
CONSTITUTION:When one or more types of compound gas containing group 11 element and one or more types of compound gas containing group VI element are simultaneously or alternately introduced onto a substrate to form a thin compound film made of the group II and VI elements, one or more of H2S2, H2S3, H2S4 are used as compound gas containing group VI element. For example, zinc diethyl 13 is used as the group II source, H2S2 15 is used as group VI source, and a ZnS film is formed by a gas source ALE method on a crystalline substrate 9 of GaAs or Si or an amorphous substrate made of glass. Since H2S2, H2S3, H2S4 called 'hydrogen polysulfide' feasibly radiate sulfur by heating or light irradiating, they are used as sulfur supply gas source to obtain a thin film of high quality at lower temperature than a conventional one at a high growing velocity.